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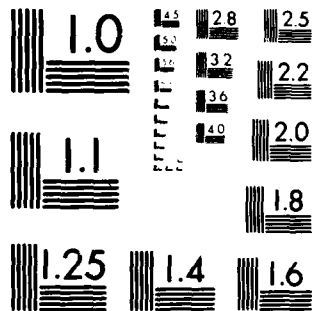
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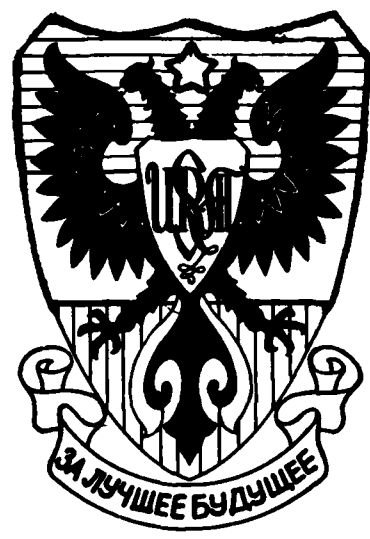
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STUDENT RESEARCH REPORT

SOVIET AIRBORNE OPERATIONS

MAJ Lowry A. West
1980

GARMISCH, GERMANY

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SOVIET AIRBORNE OPERATIONS

Major Lowry A. West

June 1980

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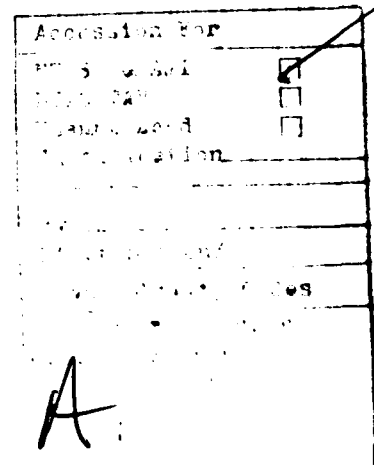


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JOHN G. CANYOCK
LTC, MI
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SUMMARY

In this paper the author explains the roles and general capabilities of Soviet airborne forces and the nature of Soviet airborne operations. Considering that at present the USSR is believed to have eight active-duty airborne divisions, the importance and widespread use of this type of force in a future war must be considered. The author concludes that while problem areas in training and support of airborne units do exist, the Soviet Union does possess a considerable potential to employ airborne forces in a variety of missions.

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INTRODUCTION

In the annual publication, The Military Balance, produced by the International Institute for Strategic Studies for the year 1978-79, and in the article "The Military Balance 1978/79", appearing in the December 1978 issue of Air Force Magazine, the Soviet Union is listed as having eight airborne divisions.¹ *This figure* represents an increase over the seven divisions the Soviets were estimated to have had in previous years and again raises the question as to why the USSR is maintaining such a large² compliment of this primarily offensive, special-type force.

The fact that during peacetime the control of airborne forces is retained within the Ministry of Defense (directly under the Ground Forces Headquarters)³ underlines the regard which the Soviet Union has for such forces. Undoubtedly the USSR appreciates the fact that rapidly deployable forces can act as efficient instruments of national power at all levels of conflict and in many crisis situations. It is the purpose of this paper, however, to examine only what the Soviets intend for their airborne forces to accomplish in time of general war, to describe in broad terms the capability of the Soviet Union to employ its airborne forces in such conflicts, and, most extensively, to describe the specific nature of airborne operations and tactics.

THE ROLE OF SOVIET AIRBORNE FORCES

Soviet doctrinal literature is quite clear in establishing the missions which airborne forces are to perform in wartime. The multiplicity of missions in itself suggests the possibility of widespread use of airborne forces or at least a desire on the part of the Soviets for that capability. There is substantial agreement among Soviet military writers as to what the specific tasks of airborne forces will be. Representative of these authors is A.A. Sidorenko, who, in his work The Offensive, lists the following as tasks to be performed by airborne forces:⁴

a. Exploitation of the effects of nuclear weapons. This is certainly the mission receiving the greatest stress in Soviet literature. Airborne forces can be used either to destroy an enemy force which has just been hit by a nuclear weapon or to hold open a breach created by a nuclear explosion in the enemy's defense. The airborne exploitation, which is expected as early as 15 to 25 minutes after the nuclear detonation, will generally be accompanied by a simultaneous advance of ground forces.⁵

b. Seizure of important areas and objectives. This mission primarily involves the seizure of facilities such as airfields which the Soviets intend to use for themselves but may also involve denying their use to the enemy.

c. Assisting the forward movement of advancing ground forces by seizing bridgeheads, crossing sites, road junctions, and mountain passes.

d. Destruction of enemy nuclear weapons systems. Airborne forces operating in the rear of an enemy have a standing rule to take action against discovered enemy nuclear weapons and facilities regardless of other assigned missions.⁶

e. Preventing the forward movement of enemy reserves. Such a mission would be performed in coordination with an advance by ground troops.

f. Preventing the orderly withdrawal of enemy forces. Airborne forces are capable of outflanking a withdrawing force and disrupting its rearward movement by seizing choke points on the withdrawal routes.⁷

g. Disruption of command, control, logistical, and other functions in the enemy's rear area. The Soviets believe that airborne units can destroy objectives (such as underground factories and storage facilities) which nuclear rockets and aviation cannot effectively engage. In general, airborne forces in the enemy's rear can force him to maintain large forces behind his own lines and thus deprive his front line forces of needed combat strength.⁸

Additional missions for airborne forces mentioned by other Soviet authors include assisting the execution of amphibious landings, organizing partisan forces in enemy-held territory, gathering intelligence, acting as a quick reaction force in time of crisis, and, if necessary, performing missions of regular motorized infantry.⁹

Airborne operations in a general war scenario can of course vary in scale. Graham H. Turbiville has suggested three types of operations - strategic, operational, and tactical.¹⁰ Christopher L. Donnelly mentions a fourth type - that of very small special purpose operations.¹¹ A combination which includes all four of these types seems to best represent the various levels of employment which the Soviets foresee for their airborne forces.

Strategic operations will most likely employ divisions or larger units. Their objective can be the seizure of strategic military targets, logistical complexes, or economic or governmental centers. The Soviets visualize such operations being carried out several hundred kilometers behind the front line with the participating force being isolated from other friendly ground forces for a long period of time.¹² Lieutenant General* Ivan Lisov in his book Airborne Soldiers has stated that strategic airborne operations are best launched in the beginning of a conflict when the enemy's ground and air defense forces are not fully coordinated. He added that Western Europe and the Near East are prime areas for strategic airborne drops.¹³

Operational-level airborne operations will probably be controlled by a front commander having operational control of up to an airborne division.¹⁴ This type operation can be conducted at a depth from 100 to 300 kilometers behind enemy lines with link-up with ground forces occurring in two to three days.¹⁵ At this level the airborne force would have the mission of seizing crossing sites or bridgeheads to facilitate movement of the ground forces, seizure of airfields for future use, destruction of enemy lines of communication, or prevention of forward movement of his reserves. Regimental-size forces are the smallest which can be expected to perform operational-level missions.¹⁶ In Soviet Military Strategy, edited by Marshal Sokolovsky, it is stated that operational- and tactical-level airborne landings will be the most widely used in a future conflict.¹⁷

Tactical airborne landings will be usually of battalion-size. They will be initiated to accomplish missions similar to those of operational landings, however on a smaller scale and closer to the front. They will be employed with the plan of linking the airborne unit with the advancing ground force (army or division-level operation) within a relatively short period of time or of supporting the airborne unit with the ground force's fire prior to the point when the enemy could overcome the landing force.¹⁸

Small-scale, special-purpose airborne operations can be conducted for intelligence, sabotage, or partisan support. Soviet literature often cites World War II examples of successful raid operations by airborne forces from small-unit to battalion in size.¹⁹

The Soviet Union has not been content to merely write about the use of airborne forces in wartime. They have also prepared their forces by integrating airborne landings into large-scale exercises and by training airborne units to perform the tasks which Soviet doctrinal literature has formulated. Some of the major exercises in the past twelve years into which airborne landings were integrated were "Dnepr" in 1967, "Dvina" in 1970, "Shchit - 76" [Shield - 76] in 1976, and "Berezina" in 1978.

In the exercise "Dnepr", an airborne division under the operational control of a front commander was dropped behind the opposing force front lines with the mission of seizing the "enemy" front headquarters, an airfield, and nuclear weapon delivery means. Personnel carriers, self-propelled weapons, and antitank weapons were air-dropped, and additional heavy equipment was air-landed. The entire operation was covered by tactical air support. Additionally, other smaller-scale airborne operations were reportedly conducted during the "Dnepr" exercise.²⁰

In the "Dvina" exercise, again a division-size airborne force was dropped, this time with the mission of forestalling the approach of the opposing force's reserves. Several regimental-size drop zones were used, and again BMD's (airborne unit personnel carriers) and artillery pieces were air-dropped. Heavier, self-propelled

*See Appendix for comparative description of Soviet Army ranks.

artillery was air-landed.²¹ In both the "Shchit - 76" and "Berezina" exercises, regimental-size airborne landings were executed behind "enemy" lines.²²

It is apparent that training in the Soviet airborne forces is also geared toward preparing units for the type missions specified in doctrinal literature. A review of 18 airborne-related articles appearing in Soviet military journals, primarily, *Voyennyy Vestnik* (Military Herald), over the past three years points out the areas of concentration in airborne unit training. Six articles dealt with the seizure of bridges or water crossing sites by airborne forces, usually of battalion-size, for the purpose of holding the site until the arrival of either a larger airborne unit or an advancing ground force. Six of the articles dealt with the seizure of mountain passes for the purpose of holding them to facilitate movement of ground forces. Two articles were concerned with the seizure of enemy airfields by airborne units in order that follow-on, air-landing forces of the units could be brought into the area of operations. One article discussed the operations of an airborne battalion which had the mission of seizing terrain in support of an amphibious operation. Three articles dealt directly with raid operations in an "enemy's" rear area. In two of these, the raid objective was a nuclear weapon system. However, in five of the articles in which the airborne force had a primary mission of other than conducting a raid, raids on various enemy installations were conducted while enroute to the main objective area.²³

OUTLINE OF GENERAL CAPABILITIES

It appears as though the Soviet Union is, in fact, training its forces to perform those missions specified in its doctrine. The extent to which the USSR can employ its airborne forces and the effectiveness of the forces themselves will determine the measure of success which the Soviets will achieve in an actual conflict.

Army General Vasily F. Margelov, Commander of all Soviet airborne troops since 1967, claimed in 1973 that his forces could be dropped in practically any weather conditions and on any terrain. He added that modern transportation aircraft can lift all heavy equipment, including tanks, in support of airborne operations.²⁴

Nevertheless the number and capabilities of Soviet transportation aircraft do place restrictions on the employment of their airborne forces. The Military Transport Aviation branch of the Air Forces provides the primary transport for airborne forces. Within this branch there are three types of aircraft which Soviet literature commonly associates with airborne operations: the An-12 (designated Cub by NATO) of which there are approximately 735 in service, the An-22 (Cock) of which there are about 50 in operation, and the Il-76 (Candid) of which 80 are estimated to have been placed into service.²⁵

The An-12 is the Soviet workhorse for parachute operations. Most Western sources place the payload of this turboprop aircraft at between 10 and 14 tons or 80 to 100 paratroopers, while range estimations vary from 1800 to 3400 kilometers depending upon the load.²⁶ This aircraft first appeared in 1961 and is believed to have good navigation in zero visibility conditions.²⁷

The An-22 has been primarily used in airland missions, bringing in follow-on heavy equipment to support airborne forces. The An-22 payload is approximately 80 tons and it has a range of 5000 kilometers at maximum load or 11,000 kilometers with a load of 43 tons. It has been known to transport nuclear-capable FROG missile systems in support of airborne operations. The An-22 is a turboprop aircraft which appeared in 1965, and it is credited with a very good navigational capability in zero visibility.²⁸

The Il-76 is a jet aircraft which came into production in 1977. It is estimated to have a lift capability of over 90 tons and a range of 5000 kilometers fully loaded. This aircraft is possibly a replacement for the An-22, or perhaps the An-12. It has airdropped a load of three BMD's in support of parachute operations.²⁹

The Soviet civil aviation fleet acts as a reserve of the Military Transport Aviation branch. This civilian fleet (Aeroflot) has 1300 medium- and long-range transports which could support military operations in time of need.³⁰

The organization of a Soviet airborne division is triangular, like tank and motorized rifle divisions. The airborne division is, however, relatively smaller, with estimates of its size running from 7200 to 8000 men. The basic maneuver components of the division are the three paratroop regiments each of which consist of three battalions. Under divisional control, organizationally, are an artillery regiment, an antitank battalion, an antiaircraft battalion, an engineer battalion, a signal battalion, a medical battalion, and various support and service units.

The capabilities of the airborne divisions have been significantly increased with the introduction of the BMD specifically designed for airborne units. The Soviets have undoubtedly spent a considerable amount of money in providing their parachute forces with this vehicle, and great stress is placed on its proper use and the correct employment of its weapons.³¹ The BMD mounts a 73-millimeter, smoothbore, automatic loading cannon and a Sagger antitank guided missile launching rail. It has a cruising range estimated at 400 kilometers, is air-droppable, can ford water obstacles, and is equipped with a collective air purification system for NBC Defense. The vehicle has a crew of three and carries six paratroopers.³² The BMD, of which there are approximately 346 in a division, thus gives airborne units both firepower and mobility and aids their survivability on a nuclear battlefield.

As its indirect fire support an airborne division has 36 D30 122-millimeter howitzers (range - 15.3 kilometers) and 18 140-millimeter multiple rocket launchers in addition to unit mortars. Air defense is provided by 36 ZU-23 23-millimeter, dual-barrel air defense guns and over 100 SA-7 hand-held, infrared missile systems. The antitank capabilities of the BMD's are supplemented by 27 57-millimeter assault guns (ASU-57), 18 85-millimeter assault guns (ASU-85), and numerous man-packed Sagger antitank guided missiles. Except for the ASU-85 assault guns and, allegedly, the ZU-23 antiaircraft guns (these may now be airdroppable), the weaponry of an airborne division can entirely be dropped by parachute.³³

It is difficult to determine the precise airdrop capability of the USSR since cubic measurements, which, rather than gross weight, usually determine the airdrop and airland load limits for aircraft, are not available. However, using rough weight measurements and the numbers and load capacities of the types of military aircraft discussed earlier,³⁴ it appears that the Soviet Union could employ at least a division at one time using both airdrop and airland entry. With the use of a substantial part of the civil air transportation fleet, the overall capability could be nearly doubled. For the conduct of a large operation utilizing Aeroflot aircraft, however, early seizure of improved landing areas would be required.

Airborne soldiers themselves are special in the Soviet Armed Forces. The airborne divisions reportedly have their pick of new conscripts entering the service.³⁵ Many soldiers selected for airborne duty have jumping experience prior to their induction through participation in the many parachute clubs sponsored by the Voluntary Society for Cooperation with the Army, Aviation, and Navy (DOSAAF).³⁶

Once in service, paratroopers undergo continuous and thorough physical conditioning, individual training necessary for them to operate in an enemy's rear areas,³⁷ and sustained training in parachute jumping.³⁸ The officer personnel are taught to make rapid decisions, to use their initiative, and to be innovative. The officers have an opportunity to gain experience in their field as the airborne forces are treated as a separate branch of the Soviet Ground Forces, and many officers spend a high percentage of their careers in airborne units. It is not uncommon, for example, to find officers in the grade of major or lieutenant colonel who have spent as many as 15 years in airborne divisions.³⁹ The commander of all airborne forces, General Margelov, has held his position for over 12 years.

THE NATURE OF AIRBORNE OPERATIONS

Planning Considerations

Although the Soviets stress that airborne operations must be conducted rapidly and should be characterized by quick actions, boldness, and even risk-taking on the part of commanders,⁴⁰ the planning for such operations is deliberate, thorough, and meticulous.

Airborne units perform the missions described earlier. The assigned mission determines the size and composition of the force to be employed, which in turn determines the length of time the force can be expected to remain in the enemy's rear area. In planning, lengthy periods behind enemy lines are the exception rather than the rule.⁴¹ Exact missions, especially for small units, are sometimes left imprecise until arrival in the actual area of operations where the nature and disposition of the enemy can be ascertained.⁴² However, airborne units are usually assigned, as a minimum, an immediate objective, a subsequent task, and perhaps an area of operation if they are to remain in the enemy's rear for an extended period. The immediate objective may or may not be the unit's primary mission. For example, a battalion could be assigned the destruction of a radar site (immediate objective) enroute to a water crossing site which it is to seize and hold until the arrival of advancing ground forces (primary mission).

Although the Soviets repeatedly state that an airborne battalion can operate independently behind enemy lines, a majority of operations will be planned for regimental or larger sized forces, particularly operational- and strategic-level employments.⁴³

Depending upon its mission, an airborne force will be task-organized to insure its success. A battalion operating independently, for example, can be augmented with an engineer platoon, a battery of ASU-85's, and a mortar battery from organic division assets in order to supplement its organic capability. Likewise a regiment might receive ZU-23 air defense guns and 140-millimeter multiple rocket launchers if it is to operate independently.

Normally an airborne force consists of two echelons. The first, or assault echelon, includes the combat forces which can be para-dropped. The assault echelon will include antitank, air defense, and engineer units and will have the missions of seizing key terrain objectives, establishing an airhead, and facilitating the landing of the remainder of the force. The second echelon is airlanded and may include non-airborne reinforcements as well as the heavy equipment and weapons of the first echelon.⁴⁴

Reconnaissance for airborne planning is both technical and tactical in nature. Technical reconnaissance provides information primarily concerning the terrain in the area of operations, its relief and defensibility, and the size and availability of drop zones and landing zones. Tactical reconnaissance provides information about the enemy, his reaction times, capabilities, air activity, and air defense locations.⁴⁵

For technical intelligence, maps and aerial photographs are usually used. Landing zones and drop zones are selected on the basis of their proximity to assigned objectives, their suitability for receiving second echelon, airlanded elements, their defensibility, and their proximity to known or suspected enemy locations. The first requirement, that of being on or close to the assigned objective, is the one most often stressed because it is considered most important for surprise and rapid mission accomplishment.⁴⁶ Normally one drop zone is selected for each regimental size unit, as was the case in the "Dvina" exercise and other large maneuvers. A division can be expected to utilize from three to six drop zones for its assault echelons.⁴⁷

Tactical reconnaissance is conducted continuously in order to provide the most current information on enemy locations and activities. The Soviets feel that airborne forces are particularly vulnerable to several types of enemy threats. The first is enemy nuclear strikes. Soviet planners are concerned that the larger the size of an airborne operation the more likely it is to be attacked with ⁴⁸ nuclear weapons, especially during the time period immediately after landing. Secondly, the Soviets show concern toward the possibility of enemy employment of heliborne reaction forces and helicopter gunships against a landing airborne unit. This type of threat is considered particularly dangerous because of the speed with which an enemy can employ it and the chance that it will arrive before the landing is organized. It is clear that the Soviets expect some form of air-mobile reaction to airborne landings, and they quite often simulate enemy helicopter attacks in training in order to prepare their paratroopers and leaders for that eventuality.⁴⁹ Thirdly, planners consider the location of enemy tank units in preparing for an airborne operation. Tanks are felt to be a significant threat to airborne units especially if they attack a landing force before it has fully ⁵⁰ organized or before the second echelon heavy weapons have arrived to support it. The final enemy capability which is of special significance to airborne planners is air defense. Enemy air defenses can preclude certain aircraft an approach to the drop area and the use of certain areas as drop zones or landing zones. Soviet planners also feel that enemy air defenses may force airdrop aircraft to fly at a ⁵¹ higher than desirable altitude, thus making them susceptible to detection by radar.

The time selected for an airborne assault can help in reducing its vulnerability. The Soviets prefer to conduct airdrops at night not only because the chances for surprise are enhanced but also because enemy tank and air-mobile reaction forces are more restricted during darkness. They recognize, however, that at night an airborne force also encounters orientation and control problems in assembling and locating equipment.⁵² Additionally, an airborne force can be dropped shortly after a nuclear strike on the enemy. Such employment avoids severe losses during landing and allows the airborne force to capture designated objectives and secure its position since the enemy, disorganized by the strike, will be unable to act quickly.⁵³

In planning, certain provisions must be made for the fire support of airborne forces. The Soviets realize that local air superiority will be necessary for the conduct of airborne operations and that air support of a landed force will be required at least until the delivery of airlanded heavy weapons has been accomplished. For larger operations deep in the enemy's rear, heavy weapons not

normally organic to an airborne division may be airlanded if landing fields have been seized.⁵⁴ Tactical airborne landings will be planned with the idea of linking up the airborne force with a ground force or supporting them with the ground force's fire before an enemy can effectively deal with them.⁵⁵

From Marshalling Area to Drop Zone

For large-scale operations (larger than one regiment), the Soviets plan to use multiple departure airfields in order to prevent the creation of a large target for nuclear weapons. Generally, up to one regiment can be expected to utilize a single departure airfield.⁵⁶ The airfields may be up to 200 kilometers back from the line of contact. Neither personnel, equipment, nor aircraft will remain at departure airfields for extended periods of time. For a division this amounts to one or two days at the most, for a battalion, perhaps only a few hours.⁵⁷ Marshalling areas will be situated close to the departure airfields. As secrecy is deemed absolutely essential, troops designated for an airborne drop will be isolated from the civilian population. Their marshalling areas will be camouflaged and any activity will take place only at night if this is at all possible.⁵⁸

General Margelov has stated that flights of airborne forces to the objective area will be conducted at low altitudes.⁵⁹ In exercises, however, flights are conducted at rather high altitudes- There are numerous instances in Soviet literature where mention is made of the fact that paratroopers were wearing oxygen masks during at least a portion of the flight. Figures given indicate flights at altitudes of up to 8000 meters, with oxygen masks being required at 4000 meters.⁶⁰

In flight, the Air Force commander will be responsible for communications, chemical and radiological monitoring, suppression of enemy air defenses, and timely arrival at the correct drop zones. Enemy air defense capabilities will be neutralized by means of air strikes, electronic countermeasures, and possibly rocket attacks.⁶¹ Despite the fact that modern aircraft capabilities have improved the Soviets' potential for conducting airborne drops in adverse weather conditions, Air Force commanders recognize the difficulty of linking up the aircraft coming from various departure airfields, establishing formations, and flying multiple routes to drop zones, all with perfect timing, in bad weather.⁶²

Aircraft are placed in a formation to insure that the proper jump sequence is followed. Within the assault echelon, a small reconnaissance and security (R & S) force is dropped first. The R & S force will probably be of company size for a regimental assault. The missions of the R & S force are to secure the drop zone by seizing favorable terrain on probable enemy avenues of approach into the area and to mark the drop zone for the main body of the assault. Alternate drivers will be landed as part of the R & S force, not only to assist in securing the drop zone, but also to initiate the derigging of vehicles and equipment which will follow. The members of the reconnaissance and security element will often jump in using freefall techniques.⁶³

Following the insertion of the R & S force, heavy equipment is dropped by parachute and shortly thereafter the personnel of the main body of the first echelon jump. The altitude of the personnel drop is usually between 250 and 300 meters, as this is considered by the Soviets to be the minimum safe altitude for a stabilized descent. The Soviets have, however, experimented with personnel drops from as low as 100 meters.⁶⁴ The main parachute used by Soviet paratroopers can be deployed either by static line or manually by use of a ripcord. There is no

evidence that the Soviet Union is using steerable parachutes, such as the MC1-1 parachute found in US forces, for its personnel drops. Heavy equipment such as BMD's, mortars, and artillery are dropped using multiple parachutes equipped with a rocket charge, which, at a designated altitude, ignites and slows the descent of the load.

Once on the ground, paratroopers assemble in platoon or company-size units. Mention is made in Soviet literature of a type of radio-technical device which is used to aid the assembly of personnel at night. Additionally, a device identified as a "search receiver" [poiskovyye priyomniki] is mentioned as being used by drivers and gunners to locate their vehicles and equipment on the drop zone at night.⁶⁵

After the assault echelon assembles, it seizes key terrain, establishes an airhead, and facilitates the arrival of the follow-on echelon if landing zones exist within the airhead. If necessary, the assault echelon may conduct immediate offensive operations to seize enemy-held airfields in order to accept the follow-on echelon's aircraft. For a small scale operation, the first echelon will carry out the initial mission upon landing and its success will be consolidated by the follow-on echelon. Subsequent missions are then performed. If the airborne operation is large and conducted at great depth, the massing of forces and their commitment are carried out in stages. Whether the airhead is maintained intact will depend upon the need to use it for subsequent resupply.⁶⁶

Offensive Operations

Offensive activity is a characteristic of Soviet airborne operations and receives the greatest treatment in Soviet literature. The two most common forms of offensive action found in Voyenny Vestnik and other military publications are the seizure of a terrain objective (river crossing site, mountain pass, etc.) to be held until the arrival of an advancing ground force and the destruction of an enemy military (logistical, fire support, or command and control) facility. The first type of operation is executed by conducting a coordinated attack on a smaller force which is securing the assigned terrain objective, and the second type is executed by striking the objective, destroying it, and then departing the area prior to the arrival of enemy reaction forces (i.e. a raid).

As previously mentioned, drop zones are normally selected for their proximity to assigned objectives, thereby minimizing the amount of movement an airborne force must perform behind enemy lines. If, however, an airborne unit is assigned several objectives or if there is no possibility of landing in the area of a sole objective, then overland movement will be required. Movement behind enemy lines is conducted primarily at night with enemy strong points, populated areas, and difficult terrain being avoided.⁶⁷ If movement in daylight is necessary, it will not be conducted on roads or in areas where observation of the forces is likely. Speed of movement will vary according to light conditions, terrain, and the presence of enemy forces. Speeds of up to 25 kilometers per hour over flat terrain at night are achieved in training exercises.⁶⁸ All airborne forces will maintain march security, to include frontal, flank, and rear security, during movement. Smaller units will be preceded on their axis of advance by at least a combat reconnaissance patrol acting as a forward security element. A regiment on the march may have up to a reinforced battalion as its advance guard, and a battalion will employ a company-size forward security element (also sometimes referred to as an advance guard).⁶⁹ Within the main body of the march force, artillery, if

attached, will move at the head of the column in order to facilitate its immediate support (by direct fire occasionally) of the forward security element. Within the main body, a combined arms (infantry and antitank) reserve is maintained.

These march formations are adopted in order to facilitate deployment should a meeting engagement with the enemy occur. If an enemy force is met along the route of march, the forward security element or advance guard will attempt to overcome it. If unable to do so, the security element will attempt to hold a favourable terrain position and support the deployment of the main body. The main body attempts to attack on one or both of the enemy's flanks using either a close or deep envelopment. If a superior enemy force is encountered, an airborne force will attempt to bypass it or, if it cannot do so, will try to fix the enemy with the forward security element while breaking contact and moving on an alternate route toward the original objective.⁷⁰

An airborne force will attack an objective in one echelon only if the enemy defense is weak, otherwise two echelons will be used. In a battalion attack, for example, the first echelon will normally consist of two companies less one platoon, the second echelon will consist of one company, and one platoon will be designated as the battalion reserve. Attacks are usually launched from at least two directions, and Soviet airborne units seek to strike an enemy on his flanks or in the rear. An attack will be mounted (personnel inside their BMD's) if an enemy is weak and has an insignificant antitank capability. If the enemy is strong, the paratroopers will dismount and advance by fire and movement with the BMD's supporting by fire. Occasionally, if the firepower of individual weapons is needed or if the BMD's cannot support the attack from stationary positions, paratroopers will move dismounted alongside or slightly behind the advancing vehicles. Likewise, if an airborne force lands on or very near to its objective, the attack will be initiated dismounted in order that time is not wasted in loading the personnel into their BMD's.

Defensive Operations

Airborne units will conduct defensive operations more often than will tank or motorized rifle units. Airborne forces must defend terrain objectives they have seized until arrival of ground forces, must prevent the movement of enemy forces, must defend airfields needed for their own use, must perform blocking force tasks in support of offensive missions and, when necessary, must defend themselves against superior enemy forces. If a terrain objective which can be approached by the enemy from several directions (such as a water crossing site) is to be held, an airborne unit will establish a perimeter defense.⁷² In blocking enemy movements or when conducting a protection mission a linear-type defense will be employed. In either case the defense will consist of a series of platoon or company strong points. Company strong points will be used if objectives are to be held for extended periods of time.⁷³

A company strong point is approximately one kilometer in both width and depth, and the organic platoons occupy positions 300 meters wide and 400 meters deep within the strong point. If greater firepower forward is desired, then all three platoons will be generally on line (a single-echelon defense). If depth is desired within the strong point, then the platoons will most often assume a "V" position with two forward and one to the rear. The distance between company strong points will be approximately one to one and a half kilometers.⁷⁴

Maximum use of the terrain is made in the defense. Engineer obstacles will be employed and alternate positions will be prepared for all-round defense. Reserves designated in the defense are comparable in size to those for the offense, that is, a platoon at battalion level and a company at regimental level.

In the defense, BMD's are placed to the rear (usually about 50 meters) of individual positions to provide fire support. The minimum distance between BMD's is 200 meters. This interval is large in order that adjacent antitank guided missile (ATGM) gunners do not confuse one another's in-flight missiles when engaging targets.⁷⁵

Ambushes are used frequently by Soviet airborne units in the defense. Ambushes are usually small in size. A company-sized ambush is considered large and would rarely occur.⁷⁶ Ambushes can be placed out at a great distance from the main defense in order to disrupt the movement of approaching enemy forces. Once the ambush is sprung, the ambushing force immediately moves back to its primary position in the area of the defense.⁷⁷

An approaching enemy is engaged by the defenders at the maximum range possible. Antitank weapons, ATGM's and assault guns, may be placed in a covering force role to engage the enemy at long range and cause him to deploy prematurely. When pressured, the covering force withdraws to prepared positions within the main defensive area. As the enemy moves closer to the airborne force, defensive fires increase. ATGM's and assault guns are directed to engage the most dangerous enemy threats (usually tanks) first, and lesser threats subsequently.⁷⁸

If the airborne force is holding a terrain objective to be utilized by friendly ground forces, then it is presumable that the defense will be terminated only through the arrival of friendly forces or through the defeat of the defending airborne unit. If an airborne unit is cut off from its link-up force, it is expected to revert to partisan and diversionary operations or, as a worst case, to defend as long as possible.⁷⁹

Combat Support Operations

Communications

Communications during Soviet airborne operations behind enemy lines reflect a great dependence on radios. The number of radios within airborne units is increasing each year.⁸⁰ Pyrotechnics, especially flares, are used for signalling purposes, however wire is rarely used, at least at battalion and company levels.

At company level, one radio net is maintained, with all company vehicles entering that net.⁸¹ Higher level units will establish more nets (logistical and staff nets) in order to fulfill their communication needs.

Except for reports from reconnaissance elements, listening silence is maintained by a unit until contact is made with the enemy. Once contact is made communications are no longer limited. On lower level nets, transmissions are often made in the clear; however, at times brevity codes are used to shorten transmission length and encrypt messages. Periodic frequency changes occur in unit nets and airborne units will, when possible, operate on lowered antennas to limit the range of transmissions.⁸²

Nuclear and Chemical Operations

A great deal of attention is paid to the possibility of enemy chemical and nuclear strikes on airborne forces. In an active nuclear, biological, or chemical (NBC) warfare environment, continuous monitoring and reconnaissance for contamination will be conducted. Such activity will be initiated as far back as the marshalling area. At the departure airfield and in flight, monitoring is the responsibility of the Air Force commander. If contamination is detected in flight or is reported to exist in the landing area, the airborne force commander is notified. Procedures are then initiated for in-flight masking, and paratroopers will jump while masked.⁸³

On the ground, unit movements will be preceded by NBC reconnaissance and monitoring elements. If a contaminated area is discovered and cannot be bypassed, it will be crossed at high speed with the collective defense systems of the BMD's in operation. After an exposure to an NBC attack, a unit will conduct complete decontamination only if accomplishment of the mission will not be delayed. Otherwise, weapons and equipment will be only partially decontaminated. During contact with an enemy force in which chemical or nuclear weapons are used, a Soviet airborne force will probably delay even partial decontamination until after disposing of the immediate threat (the enemy).⁸⁴ No reference to enemy use of biological weapons or to the offensive use of NBC weapons by Soviet airborne forces can be found in Soviet operational literature.

Reconnaissance

Reconnaissance is mentioned as a special operation here because it is so often and actively employed by Soviet airborne forces. Each airborne division has its own reconnaissance battalion. Reconnaissance elements for smaller units can come from either the divisional battalion or, as is more often the case, from resources within the units themselves. The use of reconnaissance and security teams and NBC reconnaissance elements has been discussed previously.

Reconnaissance is performed by two types of elements, a reconnaissance "group" and a combat reconnaissance patrol. The first is concerned with terrain and route reconnaissance and often has an engineer capability attached when performing these missions. The second type is concerned with the reconnaissance of objectives and enemy forces and is used to gain information prior to the launching of attacks and raids. Both types of elements can operate either mounted or on foot, and both attempt to avoid contact with the enemy. When mounted, a platoon-sized reconnaissance element can operate as far as 10 to 15 kilometers out from its parent unit.⁸⁵

Air Defense

As was previously stated, the Soviets expect that helicopter forces, both attack helicopters and air-mobile infantry, will be used as reaction forces against an airborne assault. Helicopters are expected to approach at low level and Soviet unit air defense is constructed on this basis.⁸⁶

Both active and passive air defense measures are employed. Passive air defense includes the extensive use of camouflage and observance of light and movement discipline to prevent observation from the air and the use of fire discipline procedures which require that helicopters or other aircraft be fired upon only after

the airborne unit's position is known to have been located.⁸⁷

Active air defense is the employment of organic and attached weapons against attacking aircraft. A battalion has organic SA-7 infrared missiles, and it may be augmented with ZU-23 antiaircraft systems from the air defense company organic to the regiment or from the air defense battalion found at division. Additionally, the use of vehicle and ground-mounted machineguns and individual small arms against helicopters is stressed.⁸⁸ The use of all of the above weapons requires visual observation for the location and engagement of targets, and all are used for the direct cover and protection of the troop units themselves. In an attack by airborne forces, organic and attached air defense weapons will usually follow behind the advance of the first echelon. In the defense, air defense weapons are normally placed behind front line positions, but on occasion they can be placed forward of the positions (when ground attack is unlikely) in order to provide greater protection for the defensive positions.⁸⁹

Logistics

Logistics support for airborne units is performed by elements at two separate locations, one in the rear, and the other in the assault area. Normally a small rear echelon will remain in the departure area to coordinate the support and resupply of the airborne force. The size of the logistics contingent which lands in the assault area will depend on the size of the operation and the length of time the airborne unit is expected to be operating independently. Logistics personnel who accompany the airborne force can jump in with the assault echelon or can be airlanded. For larger size operations, heavy logistics equipment, such as medical tents and equipment and recovery vehicles, will be brought into the combat area. Additionally, rear services personnel are trained in the use of captured enemy equipment, weapons, munitions and fuel as these are expected to be utilized in support of airborne forces.⁹⁰

Once on the ground in the operational area, support facilities will be placed in concealed positions and may be located great distances from one another and from the units they are to support. Usually only sufficient capability to perform minor repairs and support will actually accompany the fighting units.⁹¹ Resupply of airborne forces will be by air at night or at first light. Evacuation of casualties, if required before link-up, will also be by air.

ASSESSMENT AND CONCLUSIONS

This paper has outlined the missions, general capabilities and tactics of Soviet airborne operations. There exist, however, certain limitations and problem areas which must be pointed out in order to assess the actual potential of the airborne forces of the USSR. For the sake of presentation these problems can be divided into two groupings: procedural and organizational shortcomings, and training-related problems.

Procedural and organizational shortcomings are those problems which are due to either technical limitations, procedural or planning inadequacies, or organizational deficiencies which will restrict the Soviets in the effective accomplishment of the tasks and missions they have established for themselves. The following paragraphs outline some of these types of problems.

In order to bring some required heavy equipment into the objective area, Soviet airborne forces must first seize landing areas for aircraft. As was previously mentioned, ASU-85 assault guns and perhaps ZU-23 air defense guns are not air-droppable. ASU-85's are a primary antitank weapon of airborne forces, and ZU-23's a basic air defense weapon. Since the Soviet Union at present has no apparent low altitude parachute extraction system (LAPES) capability for the delivery of heavy equipment without landing, the absence of airfields or the inability to seize airfields will significantly reduce the combat capability of the assault echelon. Additionally, the Soviets have demonstrated neither the capability nor the desire to bring helicopters into the objective area (aboard aircraft) and thus are denying themselves a valuable reconnaissance and fire support asset.

Logistics planning and support of airborne operations appears weak. Logistics support activities operate in an apparent uncoordinated manner at great distances from one another. Severe difficulties have been encountered in searching for and assembling logistics freight on the drop zone and in resupply of petroleum products to combat forces.⁹² Commanders are often criticized for failing to consider the need for and use of rear services in training exercises. The planned use of captured enemy equipment, munitions, and fuels assumes the compatibility of such items to the Soviet supply system and assumes their capture intact and in usable form. Both of these assumptions seem overly optimistic.

Despite the assertions of General Margelov that airborne operations can be conducted in any meteorological conditions, this is simply not so. General Lieutenant Lisov has admitted that weather is a factor, considering that aircraft coming from different departure airfields must link up, fly in formation, and locate exactly the prescribed drop zones.⁹³ Weather can also detract from the effectiveness of close air support in the objective area upon which the Soviets rely heavily.

The Soviet Union has stressed to its airborne units the importance of a knowledge of the enemy's tank tactics. If we can assume that the United States is a probable enemy, then an incorrect picture of US tactics has been painted for the airborne soldier. The Soviets state that the "enemy" will attack in one or two echelons as low as company level with a third echelon being employed at battalion level. These echelons or waves are expected to extend up to 1500 meters across the front at company level, which appears rather over extended. In some cases there is no mention at all of the possibility of a combined arms force (tanks and infantry operating together) attacking.⁹⁴

In considering overall airlift capability, the Soviets fail to mention that in order for Aeroflot to supplement the Military Transport Aviation branch in the conduct of airborne operations, extensive preparation and modification of civilian aircraft interiors will most likely be required.

Finally, the authorized grade levels of officer positions in airborne units, for reasons which are difficult to ascertain, are frequently not filled. Captains are frequently found filling the position of battalion commander and, occasionally, even senior lieutenants are placed in command of battalions.⁹⁵ Additionally, there are many instances of sergeants, rather than lieutenants, commanding platoons. This is particularly critical as sergeants at the platoon level are often only in their first term of service. The use of junior personnel in positions meant for higher grades and the resultant lack of experience with which decisions are made can cause a reduction in efficiency in airborne unit operations.

Training related problems are those deficiencies dealing with the manner in which training is conducted, instances where training is lacking, and shortcomings which occur in training and reflect the state of readiness of airborne units for combat.

As was pointed out at the beginning of this paper, many potential missions exist for airborne forces. However, there is an apparent lack of training for some of the type missions which Soviet airborne units are to fulfill in a future conflict. For example, no evidence can be found of training in the exploitation of nuclear detonations, in the use of airborne forces to impede the withdrawal of an enemy in a pursuit, or in organizing partisan forces. It is known, however, that airborne forces, despite their supposedly elite status, are used to perform tasks not related to any of their potential missions. It was reported, for example, in the Soviet Armed Forces newspaper Krasnaya Zvezda (Red Star) that the highly regarded Chernigov Airborne Division in one year disarmed 74,000 old bombs and mines and planted 600 square kilometers of crops.⁹⁶

Live fire exercises are conducted during training, however it appears that only small arms and direct fire weapons are actually fired. No instances in which either artillery or close air support were integrated into ground operations could be found.

Outlined below are training shortcomings mentioned by the Soviets themselves. Although many of the deficiencies noted apply to specific exercises, it should be realized that when the Soviets openly criticize an error or shortcoming they often are doing so because it is widespread and applicable to more than just the case at hand.

Evidence exists that Soviet airborne units experience many of the problems common to airborne forces elsewhere. They have mid-air collisions between jumpers, injuries on landing, and problems with personnel and vehicles assembling with the wrong units.⁹⁷

In movement, problems range from vehicles bunching up and failing to keep the prescribed interval, to vehicle commanders failing to use terrain properly and needlessly exposing their vehicles to fire, to junior officers being unable to accurately read maps.⁹⁸

In the attack, problems exist with troops remaining mounted too long, commanders losing control by attacking with forces too spread out, and instances of leaders attacking enemy tanks with BMD's (firing from short halts) and thereby subjecting themselves to high losses.⁹⁹

In the defense, deficiencies have been noted in fire distribution (engaging the lesser threat, personnel carriers, prior to the greater threat, tanks), in exposing defensive positions by firing on observation aircraft, and in failing to dismount vehicles during the defense at night.¹⁰⁰

Indications are that NBC training is not as common as analysts in the West tend to believe. Extensive NBC retraining was required of an airborne battalion prior to undergoing an exercise in which NBC agents were to be used, and some unit officers did not even know how the collective defense systems on their vehicles operated nor were they familiar with other basic NBC procedures.¹⁰¹

Deficiencies in communications procedures are particularly common. Leaders are criticized for their extensive dependence on radio communications and their lengthy

and vague transmissions. Radio exercises are sometimes conducted in unit motor pools, i.e. at short range and under ideal conditions, thus giving overly optimistic appraisals of the dependability of the systems and their actual functioning under field conditions.¹⁰²

A precise evaluation of the potential effectiveness of Soviet airborne operations is difficult to make. Certainly the capability to employ well equipped forces exists. While this paper did not discuss the use of helicopter delivery of paratroop units, Marshal Sokolovsky has stated that such a potential exists and will be common for tactical level operations.¹⁰³ The Soviet Union has definite problems in preparing its personnel for airborne operations and in organizing the support of these operations. However, efforts to correct shortcomings and to develop new techniques and concepts to enhance the overall capability of airborne units are being made.¹⁰⁴ Airborne forces are considered elite forces. Their relative transportability and the fact that control over them is retained at the Ministry of Defense level enables the USSR to readily employ them not only in a general war environment but also at all lesser levels of tension or conflict. It is difficult to imagine that the leadership of the Soviet Union would maintain an eight-division airborne force capability and not plan to use it extensively.

APPENDIX

Equivalent US and Soviet general officer ranks:

<u>Soviet</u>	<u>US</u>
General-Major	Brigadier General
General-Lieutenant	Major General
General-Colonel	Lieutenant General
General of the Army	General

FOOTNOTES

¹International Institute for Strategic Studies, The Military Balance, 1978-1979 (London: The International Institute for Strategic Studies, 1978), p.9; and "The Military Balance 1978/79", Air Force Magazine, December 1978, p.69.

²The United States maintains only slightly more than one airborne division, and other NATO countries still less.

³US Department of Defense, Handbook on the Soviet Armed Forces (Washington, D.C.: Defense Intelligence Agency, 1978), p.8-4.

⁴A.A. Sidorenko, The Offensive (A Soviet View) (Washington, D.C.: US Air Force, 1974), p.50.

⁵N.A. Lomov, ed., The Revolution in Military Affairs (Washington, D.C.: US Air Force, 1975), pp.146-147; V. Ye. Savkin, The Basic Principles of Operational Art and Tactics (A Soviet View) (Washington, D.C.: US Air Force, 1974), p. 193; and V.D. Sokolovsky, Military Strategy, trans. Harriet Fast Scott (Menlo Park, California: Stanford Research Institute, 1971), pp.337-338.

⁶A. Bykov, "Parashyutno-Desantnyy Batal'on V Peredovom Otryade", Voyennyy Vestnik, No. 9 (1978), p.65; and I. Kononev, "V Razvedyvatel'noy Gruppe" Voyennyy Vestnik, No. 9 (1976), p.49.

⁷Ivan I. Lisov, Desantniki (Moskva: Voenizdat, 1968), p.258.

⁸Ibid., pp.225, 260.

⁹US Department of the Army, Understanding Soviet Military Developments (Washington, D.C.: Office of the Assistant Chief of Staff for Intelligence, 1977), p.45; and Lisov, Desantniki, pp.245, 256.

¹⁰Graham H. Turbiville, "Soviet Airborne Troops", Military Review, April 1973, pp. 64-65.

¹¹C.L. Donnelly, "The Soviet Desant Concept", International Defense Review 6 (December 1971), pp.544-545.

¹²M. Belov, "Air Landing Forces" Soviet Military Review, No. 1 (1979), p.22.

¹³The Soviets use the term Near East (Blizhnyy Vostok) when referring to the area we call the Middle East. Lisov, Desantniki, p.257.

¹⁴In this context operational-level refers to Front and Army operations. Tactical-level includes the operations of division and lower units, while strategic-level operations are those controlled primarily by the General Staff of the Armed Forces. Operational command (in the US meaning) is indicated here rather than command as the Front commander will have only temporary use of the airborne forces.

¹⁵US Department of the Army, Military Operations of the Soviet Army (Arlington, Virginia: US Army Intelligence Threat Analysis Detachment, 1976), p.188.

¹⁶Andrey A. Grechko, ed., Sovetskaya Voyennaya Entsiklopedia, Vol.3 (Voenizdat, 1977), p.152.

¹⁷Sokolovsky, p.339.

¹⁸Savkin, p.192.

¹⁹Ya. Samoylenko, "O Reydivykh Deystviyakh Desantnikov", Voyennyy Vestnik, No. 4 (1978), p.45; and US Department of the Army, Understanding Soviet Military Developments, p.45.

²⁰Ivan I. Lisov, Zemlya-nebo-zemlya (Moskva: DOSAAF, 1973), p.59; and Turbiville, pp.66-67.

²¹V.S. Ryabov, Dvina (Moskva: Voenizdat, 1979), p.35; S. Borzenko, G. Buravkin, and Ya. Makarenko, "Smelost', Bystrota, Natisk", Pravda, 12 March 1970, p.6; and Lisov, Zemlya-nebo-zemlya, pp.106-109.

²²"Shield 76: Warsaw Pack Maneuver", Military Review, March 1977, p.38.

²³Voyennyy Vestnik is a monthly publication in which one article dealing with airborne operations usually appears in each issue.

²⁴V. Margelov, "Soviet Airborne Troops", Soviet Military Review, May 1973, p.3; and V. Margelov, "Vozdushno-Desantnyye", Voyennyye Znaniye, No. 12 (1978), p.15. Marshal Grechko has made similar comments regarding the lack of terrain and weather restrictions on Soviet airborne forces. Andrey A. Grechko, The Armed Forces of the Soviet State (Washington, D.C.: US Air Force, 1977), p.81.

²⁵V. Izgarshev, "V Nebe-VTA", Pravda, 4 January 1979, p.6; and The Military Balance, 1978-1979, p.10.

²⁶R. Bonds, ed., Soviet War Machine (London: Hamlyn, 1977), p.87; US Department of Defense, Handbook on the Soviet Armed Forces (Washington, D.C.: Defense Intelligence Agency, 1978), pp.10-14, 10-18; E. Van Veen, "Soviet Paratroopers", Military Spectator, trans. US Army Foreign Science and Technology Center, Document No. FSTC-HC-23-99-73, p.1; and Turbiville, p.63. Lieutenant General Lisov states that the An-12 has a payload capacity of 14 tons. Lisov, Desantniki, p.258.

²⁷Van Veen, p.1.

²⁸Lisov, Desantniki, pp. 285, 310; J.W.R. Taylor, "Soviet Airpower", Military Review, March 1977, pp.90-91; Turbiville, pp.62-63; and Van Veen, p.1.

²⁹Bonds, p.90; Handbook on the Soviet Armed Forces, pp.10-14, 10-18; A. Golubkov, "Sokrashchaya Sroki Podgotovki Desanta K Boyu", Voyennyy Vestnik, No. 11 (1979), p.40.

³⁰Savkin, p.180; and The Military Balance, 1978-1979, p.10.

³¹Kononov, "V Razvedyvatel'noy Gruppe", p.50.

³²Bonds, p.185.

³³Margelov, "Vozdushno-Desantnyye", pp.13-14; and Bonds, p.160. The Soviets mention bringing in air defense weapons by parachute and since the ZU-23 is the main air defense weapon it is quite possible that it is being airdropped.

³⁴Using the following weights for major items of equipment and total numbers of items given in the text the weight of equipment and personnel is approximately 8,200 tons: BMD - 9 tons, ASU-57 - 3.5 tons, ASU-85 - 14 tons, multiple rocket launcher - 1.2 tons, D30 Howitzer - 3.5 tons, ZU-23 - 1.0 tons, tank retriever - 32 tons, truck (average) - 2.0 tons, BRDM-2 - 7.0 tons, and total of personnel - 800 tons. An airborne division has approximately 958 trucks, 87 BRDM-2 command and reconnaissance vehicles, and 22 tank retrievers. See US Department of the Army, Field Manual 30-102, Opposing Forces Europe (Washington, D.C.: Department of the Army, 1977), p.A-29. Total weight capability of all An-12, and Il-76 aircraft is approximately 21,000 tons, and thus even when ammunition and supply weights are added to equipment weights it appears that the capability exists within MTA to deploy at least one division.

³⁵Bonds, p.159.

³⁶Lisov, Zemlya-nebo-zemlya, pp.131-141.

³⁷V. Pepelin, "Tyi-Desanta: Zadachi i Resheniya", Voyennyy Vestnik, No. 3 (1975), p.62; and Lisov, Zemlya-nebo-zemlya, p.12.

³⁸V. Ivanov, "Chtoby Byt'Gotovym K Pryzhku S Parashyutom", Voyennyy Vestnik, No. 2 (1977), pp.61-63.

³⁹A. Oleynik, "The Testing", Krasnaya Zvezda, (trans. US Joint Publications Service) 20 June 1978, p.1.

⁴⁰M. Limantsev, "S Boyevoy Strel'boy", Voyennyy Vestnik, No. 12 (1976), p.69; and Kononov, "V Radzvedyvatel'noy Gruppe", p.50.

⁴¹Lisov, Desantniki, p.242.

⁴²Samoylenko, "O Reydivykh Deystviyakh Desantnikov", p.46.

⁴³A. Tereshchenko and V. Bibikov, "V Obstanovke Priblizhennoy K Boyevoy", Voyennyy Vestnik, No. 3 (1978), p.69; G. Shevchuk, "Chtoby Uspeshno Borot'sya S Tankami", Voyennyy Vestnik, No. 7 (1978), p.45; and Grechko, Sovetskaya Voyennaya Entsiklopediya, Vol. 3, p.152.

⁴⁴Grechko, Sovetskaya Voyennaya Entsiklopediya, Vol. 2, p.258; and Military Operations of the Soviet Army, p.189.

⁴⁵Lisov, Desantniki, p.238.

⁴⁶I. Timonshenko, "Batal'on Deystvuyet V Gorakh", Voyennyy Vestnik, No. 4 (1979), p.25; and M. Muslimov, "Batal'on Zakhvatyvayet Gornyy Prokhod Noch'yu", Voyennyy Vestnik, No. 5 (1979), p.39.

⁴⁷Lisov, Desantniki, p.240; Lisov, Zemlya-nebo-zemlya, p.106; and Military Operations of the Soviet Army, p.189.

⁴⁸Lisov, Desantniki, p.241; Bonds, p.160; and M. Naumov and V. Dregval', "V Zone Zarazheniya", Voyennyy Vestnik, No. 1 (1978), p.53.

⁴⁹V. Sinoshenko and V. Fomichev, "Kogda Desant Atakuyut Vertolety", Voyennyy Vestnik, No. 10 (1978), p.43.

⁵⁰Shevchuk, p.45.

⁵¹Lisov, Desantniki, p.248.

⁵²R. Salikov, "Parashutno-Desantnyy Batal'on Deystvuyet Noch'yi", Voyennyy Vestnik, No. 6 (1977), p.64.

⁵³Savkin, p.193.

⁵⁴Ryabov, p.35.

⁵⁵Savkin, p.192.

⁵⁶Lisov, Desantniki, p.239.

⁵⁷Belov, p.23.

⁵⁸Lisov, Desantniki, p.251.

⁵⁹Margelov, "Soviet Airborne Troops", p.3.

⁶⁰Izgarshev, p.6; and Lisov, Zemlya-nebo-zemlya, p.12.

⁶¹Van Veen, p.2.

⁶²Lisov, Desantniki, pp.248, 250.

⁶³Borzenko, Buravkin, and Makarenko, p.6; Lisov, Zemlya-nebo-zemlya, pp.59, 110; I. Kononov, "Kogda Desant Atakuyut Tanki", Voyennyy Vestnik, No. 3 (1977), p.57; and I. Skorodumov and I. Dynin, "Sil'a Desanta Proveryayetsya V Boyu", Voyennyy Vestnik, No. 7 (1975), p.44.

⁶⁴Lisov, Zemlya-nebo-zemlya, p.113.

⁶⁵See Salikov, pp.64-65; and V. Saprunov, "Sovershenstvuya Boyevuyu Slazhennost'", Voyennyy Vestnik, No. 9 (1977), p.63.

⁶⁶Belov, p.23.

⁶⁷Shevchuk, p.54; and Belov, p.23.

⁶⁸Muslimov, p.40.

⁶⁹Bykov, p.64; and Ye. Semenov, "Yesli Voznikayet Vstrechnyy Boy", Voyennyy Vestnik, No. 11 (1978) p.52.

⁷⁰Semenov, p.52.

⁷¹Muslimov, p.43; and I. Zuyev, "Manevr Obespechivayet BMD", Voyennyy Vestnik, No. 2 (1976), p.86.

⁷²V. Grechnev, "Sovershenstvuya Takticheskuyu Vyuchku", Voyennyy Vestnik, No. 12 (1977), p.77.

⁷³Belov, p. 23.

⁷⁴Zuyev, p.87.

⁷⁵Kononov, "Kogda Desant Atakuyut Tanki", p.59.

⁷⁶G. Kuvitanov and V. Dedyukhin, "Rota V Zasade", Voyennyy Vestnik, No. 1 (1976), p.46.

⁷⁷I. Kononov, "V Oborone S Boyevoy Strel'boy", Voyennyy Vestnik, No. 6 (1978), pp. 41-42. There is mention in Soviet literature of dropping an ATGM battery by helicopter in the rear of an enemy to hit his advancing reserves by ambush. Such an ambush, however, would probably be initiated from behind friendly lines. V. Zaytsev, "Batareya PTURS V Takticheskoy Vozdushnoy Desant", Voyennyy Vestnik, No. 2 (1977), p.76.

⁷⁸Kononov, "V Oborone S Boyevoy Strel-boy", pp.41-42.

⁷⁹Lisov, Desantniki, p.243.

⁸⁰Skorodumov and Dynin, p.47.

⁸¹Kononov, "Kogda Desant Atakuyut Tanki", p.58.

⁸²See Bykov, p.65; and B. Zhukov, "Radiotrenirovka Idet Na BMD", Voyennyy Vestnik, No. 11 (1977), p.78.

⁸³Naumov and Dregval, p.53.

⁸⁴Ibid., pp.55-56.

⁸⁵Kononov, "V Razvedyvatel'noy Gruppe", p.47; and Muslimov, pp.40-41.

⁸⁶Sinoshenko and Formichev, p.43.

⁸⁷G. Bandarenko, "Otrazhaya Ataki S Neba", Voyennyy Vestnik, No. 2 (1977), p.60.

⁸⁸In movement, small arms will be used against helicopters by firing them through the open hatches of BMD's. Bondarenko, p.60.

⁸⁹The philosophy behind this is that in broken or wooded terrain helicopters might be able to attack forward positions from low altitudes out of the line of fire of rearward positioned air defense weapons. Bondarenko, p.59.

- ⁹⁰ Grechko, Sovetskaya Voyennaya Entsiklopediya, Vol. 2, p.285.
- ⁹¹ Pepelin, p.64-
- ⁹² Ibid., p.63.
- ⁹³ Lisov, Desantniki, pp.248, 250.
- ⁹⁴ Kononov, "Kogda Desant Atakuyut Tanki", p.57.
- ⁹⁵ Major is the authorized rank of a battalion commander. In one case a senior lieutenant with only three years service was commanding a battalion in the Chernigov Division. V. Filatov, "Under the Banners Covered With Glory: The Chernigovskaya Red Banner", Krasnaya Zvezda, 11 January 1978, trans. US joint Publications Research Service, p.2.
- ⁹⁶ Ibid.
- ⁹⁷ Lisov, Zemlya-nebo-zemlya, pp.160-161; and Salikov, p.65.
- ⁹⁸ Saprunov, p.64; and Skorodumov and Dynin, p.48.
- ⁹⁹ Kononov, "Kogda Desant Akatuyut Tanki", p.58; and Yu. Rodnikovskiy, "Reyd Parashyutno-Desantnogo Batal'ona V Tylu Protivnika", Voyennyy Vestnik, No. 8 (1978), p.53.
- ¹⁰⁰ Kononov, "V Oborone S Boyevoy Strel'boy", p.43; Salikov, p.65; and Bondarenko, p.60.
- ¹⁰¹ Naumov and Dregval', p.53.
- ¹⁰² Zhukov, p.74.
- ¹⁰³ Helicopters have been used in large exercises as early as the Dnepr maneuvers of 1967 to deliver paratroopers behind enemy lines. Sokolovsky, p.337.
- ¹⁰⁴ Areas of concentration include new methods for introducing men and equipment into the objective area, the cross-training of personnel within airborne units, and improvements of individual training. See Pepelin, p.64; Saprunov, p.64; and Lisov, Zemlya-nebo-zemlya, p.143.

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